Global Cooling

F P S C

ULT25 -80º C Portable Freezer
User Manual

INTRODUCTION

The ULT25 (Ultra Low Temperature, 25 liter volume) incorporates next generation Free-Piston Stirling Cooler (FPSC) technology.

FPSCs differ from conventional compressor based refrigeration in that they provide high efficiency, deep-temperature cooling in a lightweight package allowing true portable operation.

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SAFETY PRECAUTIONS

To prevent personal injury, injury to others, or damage to property, read these safety precautions carefully before use.

- Do not disassemble, modify or repair. There are no user serviceable parts inside the covers.
- Do not immerse in water or pour water on the unit.
- Do not put ice or liquid water directly in the freezer box, always use suitable containers.
- Do not use glass containers when the contents might freeze and break.
- Do not store flammable items such as gasoline, thinner, or solvents in the freezer. The freezer is NOT rated as an explosion proof freezer.
- Do not remove any frost or ice which has accumulated on the inside of the freezer using hard and/or sharp objects, such as knives, screwdrivers, etc. The inside panels are heat exchangers and can be damaged.
- Do not cut, change or modify the power cable.
- When removing the plug, hold onto the plug and not the cord.
- Do not block the air intake or air discharge vents.
- Do not drop, throw, or abuse the freezer.
- Do not operate under extreme environmental conditions, such as in a car trunk, in very high humidity environments, in rain or other severe weather.
- Do not use solvents to clean the panel or the outside or inside of the freezer.
- An Ultra Low Temperature Freezer is qualitatively different than a home freezer. At -80º C frostbite can occur in seconds
- . You should establish and follow a protocol for safe ULT operating procedures. This should include (but not limited to):
    - Never handle samples or freezer accessories with bare hands.
    - Do not use gloves which become brittle at ultra low temperatures
        - Nitrile and latex gloves are inadequate
- Liquid permeable gloves are dangerous because ULT liquids can be held against the skin and increase the amount of damage.
    - Be especially careful that liquids at ULT are not spilled onto skin or clothing.
    - Use only sample containers that have been approved or tested for ULT use.
    - Some plastics shatter at Ultra Low Temperatures. Avoid splinter hazards.
    - Biological and Chemical Hazards are still hazardous at ULT. Always wear proper protective equipment and follow appropriate isolation protocols.
    - Many types of labels will fall off and/or break at ULT. Some types of ink which stick to glass and/or plastic at room temperature lose adhesion at ULT.
- In addition to the ULT hazards above, there are also physical hazards to consider:
    - Be cautious when closing the lid to avoid a pinching hazard.
    - Be careful when loading the box with heavy items.
    - Always use the handles to carry the freezer.

UNPACKING AND SET-UP

1. Remove the freezer and all accessories from the box. Carefully inspect the freezer and all accessories for any shipping damage.
2. The following items are included;
   - ¤ ULT25 Freezer with inner foam lid
   - ¤ SS-18 AC Power Supply with cord
   - ¤ 12V DC Power Cord (for auto accessory plug)
   - ¤ Key for lock
   - ¤ User Manual on CD
   - ¤ Warranty Registration
   - ¤ Bag with stoppers for access port
   - ¤ Bag with sealing material for access port
3. Place the freezer on a level surface.
4. Make sure that the air inlets and outlets are not blocked
5. Connect to a power source. The freezer can be used with either the AC Power Supply for lab, home or office use, or the DC Power Cord for automotive use.
   a. To use the AC Power Supply:
      i. Connect the square plugs on the end of the cord to the power supply as shown. Securely tighten the terminal screw against the pin using a flat screwdriver.
      ii. Be certain to observe the correct polarity. Failure to do so may harm the freezer.
      iii. Plug the black and red connectors into the ULT25.
      iv. Plug the AC Power Supply cord into a 115 volt AC source. To use with a 220-240 V supply, the red switch on the AC Power Supply must be moved to the 230 V position.
      v. Turn on the power supply

   b. To use the DC Power Cord in a motor vehicle:
      i. Make sure the freezer remains level. Exceeding an angle of 12 degrees may cause loss of cooling.
      ii. Plug the DC Power Cord into a 12V outlet that is rated at 18 amps or greater. Consult your automotive specialist if your vehicle lacks 18+ A rated 12V outlets.
      iii. Plug the black and red connectors into the ULT25.
6. <u>NOTES ON OPERATION IN A VEHICLE</u>
   a. The ULT25 will operate on battery power for a limited time before the battery is drained and the car cannot be started. This time will vary from vehicle to vehicle but is generally only a few hours.
   b. The engine should be running to prevent accidental total discharge of the battery.
   c. The power to 12V outlets in some vehicles may be interrupted during engine starting. This will cause a sudden stop of the cooling unit which may produce a sound that is different than when the turning off the ULT25 by using the OFF button. This is normal and will not damage the cooling unit. The cooling unit will restart automatically once power resumes.
   d. Do not operate the ULT25 an unattended in a vehicle. This may lead to overheating if left in the sun and subsequent damage to stored contents

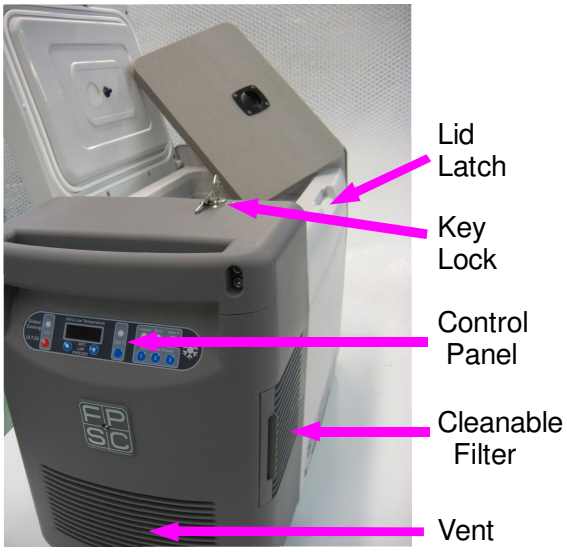
7. Disconnecting from power
   a. Turn off the freezer (see OPERATION section below)
      i. The 7-segment display will show the word "**OFF**" while the FPSC turns off.
      ii. Unplug the freezer after the word "**OFF**" disappears and the display goes dark.
      iii. If you unplug the freezer while it is ON, you will hear a sudden noise when the FPSC shuts OFF. Power outages will also cause the same noise.

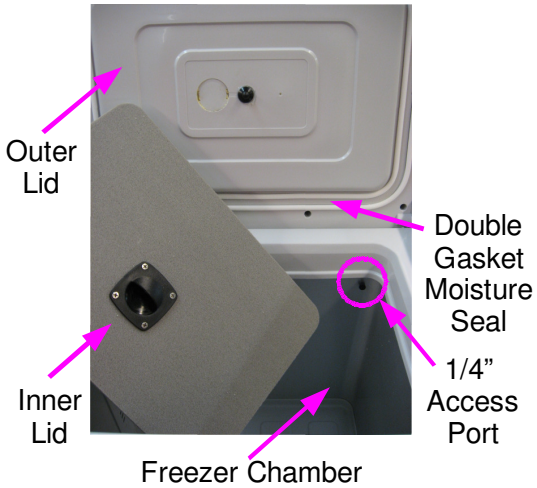
FEATURES

Freezer

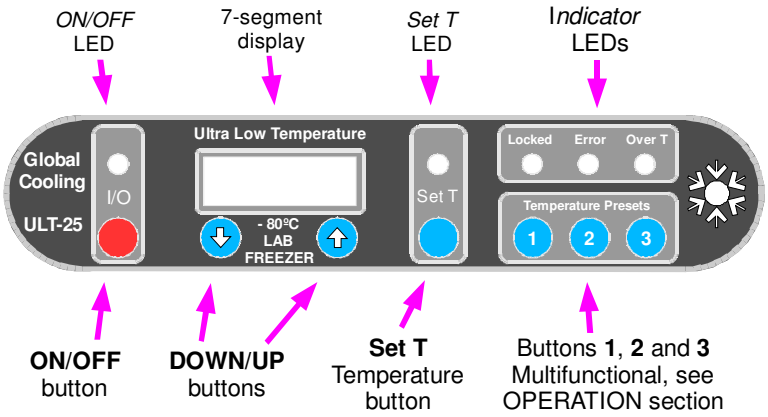
The Global Cooling ULT25 FPSC freezer has the following features:

- A freezer chamber which is protected by two lids
  - Inner lid – a tight fitting foam lid
  - Outer lid – a latching lid with a lock
- Control Panel
  - Described in more detail in the next section
- Locking latch
  - Can be locked to provide sample security
- Access port
  - For thermocouple wires, purge gas, etc
- Cleanable filter
  - Helps protect the heat rejection fins from dust
- Power Connector
  - Color coded for positive/negative, can only mate with cords one way





Control panel



- 7-Segment display
  - Shows all numerical displays – default display is chamber temperature
- **ON/OFF** button and LED
  - Turns freezer on and off and shows state
- **Set T** button and *Set T* LED
  - This must be pressed to adjust the Set Temperature
- Temperature Presets **1**, **2** and **3**
  - These control the temperature Presets
    - When the Set T LED is not glowing, pressing the button shows the value
    - When the *Set T* LED is glowing, pressing this button changes the set point to the preset value
    - Pressing and holding one of these buttons and 🡻 / 🡹 changes the value
  - When the *Error / Over T* LEDs are lit then
    - **2** – shows and controls errors
    - **3** – controls the audible over/under temperature alarm
  - Pressing all three buttons simultaneously controls the panel LOCK function
- 🡻 / 🡹 buttons
  - Used to adjust Set Point Temperature (when the display shows **S ##**)
  - Used to adjust Preset Temperatures (when the display shows **P ##**)
  - Used to adjust Over/Under Temperature alarm settings (display shows **## h**)
  - Used to show MIN / MAX temperatures since last reset (**H###** or **L###**)
- *Error* LED
  - Indicates when there is an electrical, mechanical or similar error condition.
- *Over T* LED
  - Indicates when the chamber is over / under the set point.
    - The audible beeper can be set to delay warning.
- *Locked* LED
    - Indicates when the panel is locked.

In this User Guide indicator LEDs are *italicized*, control buttons and 7-segment display values are **BOLD.** Colored bullets and text are used to group similar features and are the same color through the text and in the Quick Guide at the end of the manual.

QUICK GUIDE

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Global Cooling ULT-25 Freezer

BASIC FUNCTIONS

ON	Press & hold **I/O** for two beeps
OFF	Press & hold **I/O** for three beeps
Change Set Point	Press & hold **Set T** until *Set T* LED glows, **S ##** displayed, then ↑ or ↓
See Set Point	Press **Set T** briefly. **S ##** displayed
Return to Temp Display	Press **Set T** briefly, or wait 8 seconds.
7-segment display	number only – chamber temperature; **S ##** – set point;

ADVANCED FUNCTIONS

Change to Preset	Press & hold **Set** until *Set T* LED glows, **S ##** displayed, then **Preset 1 2** or **3**
Change Preset Temp	Press & hold **Preset 1 2** or **3, P ##** is displayed, and then ↑ or ↓
Max Temp	*Set T* LED must be off. Push ↑ briefly. **H###** displays the Max temperature.
Min Temp	*Set T* LED must be off Push ↓ briefly. **L###** displays the Min temperature.
Clear Temp Min/Max	*Set T* LED must be off Push both ↑ and ↓ simultaneously.
Postpone Over T Alarm	When *Over T* light glows, press **Preset 3** until time shows (**1.0h** default) (If *Over T* LED is not glowing, then **Preset 3** acts as a Temp Preset)
Change Silence Time	When *Over T* light glows, press **Preset 3** until time shows (**1.0h** default) then use ↑ or ↓ while continuing to press **Preset 3**
Perm. Silence Alarm	Change silence time to negative number. LED will function, but not Audible
Change Temp Allowance	When *Over T* light glows, press **Preset 2** and **3** until **A##** shows, then ↑ or ↓
Return to Temp Display	Wait 8 seconds
See Error Code Again	If *Error* LED is on then Press **Preset 2** briefly (If *Error* LED is not glowing, then **Preset 2** acts as a Temp Preset)
Turn off *Error* LED	Press & hold **Preset 2** for 5 seconds when *Error* LED is on (will turn on again if error condition persists)
Lock Panel	Press & hold **Preset 1** AND **2** AND **3** until *Locked* LED turns on (5 seconds)
Unlock Panel	Press & hold **Preset 1** AND **2** AND **3** until *Locked* LED turns off (5 seconds)
7-segment display	**H###** – Max temp; **L###** – Min temp; **P ##** – Preset temp; **## h** – alarm silence; **A ##** – Temp Allowance; **E ##** – Error code

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OPERATION

General Operating Principles

Important changes to the freezer settings require sustained button pushes. This helps prevent accidental changes to the settings during transportation. Some sequences require a 3 second button press and hold while other sequences require a 5 second button press and hold.

For example,

Turning the freezer ON requires a 3 second press and hold (two beeps)
Turning the freezer OFF requires a 5 second press and hold (three beeps)

The default display is the chamber temperature. Other displays such as Set Point, Alarm Postpone, etc., are marked with a letter such as S (set point), h (alarm postpone), etc. These secondary displays revert to the default display after approximately 8 seconds of button inactivity.

How to Turn the Freezer On/Off

- To turn the freezer on
  - Press and hold the **I/O** button for two beeps (~3 seconds)
  - The freezer will display a greeting message, and then the chamber temperature
- To turn the freezer off
  - Press and hold the **I/O** button for three beeps (~5 seconds)
  - The freezer will display "**OFF**" for 10 seconds, and then go dark.

Changing the set temperature

To see the current set temperature

- Press the **Set T** button briefly
- The current set temperature will be displayed with the letter **S ##**
  - After 8 seconds of inactivity the display will revert to the current temp

Change the Set Point to a new value

- There two ways to change the Set Point
  - Manually adjusting the temperature using 🡻 / 🡹
  - Using one of three adjustable Preset Buttons
- **Adjusting the Set Point manually**
  - Because of the importance of the Set Point Temperature, changing the Set Point requires a "two button procedure". This means:
    - **Method A** - either holding the **Set T** button while simultaneously pressing 🡻 / 🡹 -- OR
    - **Method B** - holding down **Set T** until the *Set T* LED glows and then pressing 🡻 / 🡹.
    - Methods A and B achieve the same effect. The user can use whichever method they prefer.

- To change the set Set Point by **method A**
  - Press and hold the **Set T** button and then push the ↓ / ↑ buttons (do not release the **Set T** button).
    - The Set Point temperature will appear with the prefix **S** in the 7-segment display.
    - When the ↓ / ↑ buttons are pushed the Set Point will change by 1° C. at first
    - If the ↓ / ↑ buttons are held for 5 seconds the step size will increase to 5° C.
    - If the ↓ / ↑ buttons are briefly released (less than ½ second) while continuing to hold down the **Set T** button the increment/decrement size will return to 1° C.
    - Release all buttons once the desired Set Point is achieved. The display will return to chamber temperature after about 8 seconds.

- To change the Set Point by **method B**
  - Press and hold the **Set T** button until the *Set T* LED is lit.
    - The Set Point temperature will appear with the letter S in the first 7-segment display.
  - The ↓ / ↑ buttons can be used to change the Set Point.
    - When the ↓ / ↑ buttons are pushed the Set Point will change by 1° C. at first
    - If the ↓ / ↑ buttons are held for 5 seconds the step size will increase to 5° C.
    - If you briefly release (a half second) the ↓ / ↑ buttons while continuing to hold down the SET button the increment/decrement size will return to 1° C.
    - Release the ↓ / ↑ buttons once the desired Set Point is achieved.
  - Press the **Set T** button briefly (less than 1 second) to turn off the *Set T* LED. The display will return to chamber temperature.

Using Preset Temperatures

- The three buttons labeled **1**, **2** and **3** can be used to quickly change the Set Point to frequently used values. When shipped the Presets are set to -80° C, -40° C, and -20° C. They can be set to any preferred values (see next section).
- To choose one of the preset temperatures:
  - Press and hold the **Set T** button until the *Set T* LED glows
  - Push one of the **Preset Temperature** buttons briefly
  - The new set temperature will be shown in the 7-segment display
  - If this is the desired Set Temperature the user can either:
    - Briefly press the **Set T** button to turn off the *Set T* LED OR
    - Wait for approximately 8 seconds when the freezer panel will return to normal operation

Changing the preset values

- Many users will have protocols that specify temperatures such as -75º C, *etc*. The Preset buttons allow users to quickly change the Set Point to those temperatures.
- Changing the preset value does not change the Set Point itself. Only the value of the preset is being changed. This means the **Set T** button is NOT pressed for this procedure.
- Press and hold one of the PRESET TEMPERATURE buttons
  - Use the ↓ / ↑ buttons to change the value of the preset button.
    - This value will be saved even if the freezer is turned off or powered off.
- To change the Set Point to this new Preset value follow the instructions in the previous section.

Min and Max Temperature

- The freezer remembers the highest and lowest temperatures since being turned on or since the min/max was last reset (min initially reads 0 until chamber T falls below 0).
  - Do not use Set Temperature mode (The *Set T* LED should be off)
  - Press ↓ (↑) briefly to see the Min (Max) temperature
  - To reset the Min/Max memory, simultaneously press both ↓ and ↑

Over Temperature Alarm

- The freezer has an adjustable over and under Temperature Alarm mode. This alarm can be activated whenever the freezer is on, even when the panel is locked.
  - If $T_{chamber} \geq 15$º C when the freezer is turned on, the Temperature Alarm is automatically postponed for 3.0 hours to allow initial cooldown.
- If the freezer compartment temperature is 10º warmer or colder (adjustable, see below) than the set point for 5 seconds then it will go into Temperature Alarm mode.
  - The *Over T* light will go on (this is used for under temperature alarms as well).
  - The freezer will make a double beep every 10 seconds.
  - Situations which can affect the freezer's ability to maintain a steady state or cooling rate include:
    - The lid is ajar
    - The air vents are blocked
    - Addition of a large relatively warm mass
    - Power supply problems
    - Mechanical and/or electrical problems.

How to silence the audible Temperature Alarm

- The *Over T* light will always be on when the cooler temp is over or under the set temp by more than 10º C (adjustable, see below).
- The audible alarm can be silenced in two different ways
  - Postponed - The audible alarm will be silenced for an adjustable time period.
  - Silenced – it will be off until it is manually reset or the freezer is turned OFF/ON

To postpone an Alarm

- When the audible alarm is sounding it can be postponed
- Press and hold the button beneath the *Over T* LED until a time is displayed… it will look like **###h** which represents a decimal fraction of an hour -- **1.0 h** is the default.
- The audible alarm will be turned off for the amount of time shown
- If you wish to change the amount of time before the audible alarm is armed again,
  - Continue to press and hold button 3 under the *Over T* LED
  - While holding button 3, push the ↓ / ↑ buttons to change the delay by 0.1 h increments. If the button is held for approximately 5 seconds the time will begin to change by 1.0 h increments.
- Typical times for recovery to -80º C after adding RT samples to -80º C chamber
  - 16 15-ml centrifuge tubes w. centrifugate 0.8 h
  - 96 2 ml cryovials w. 1.8 ml cryopreservant 1.5 h
  - 8 50-ml centrifuge tubes filled w water 3.5 h
  - 2 freezer bottles w 500-ml water 8.0 h

How to change the Over (Under) Temperature Allowance

- The *Over T* LED is lit whenever the chamber temperature is either higher or lower than the set point by an "allowance" (*T alarm = T set +/- T allowance*). The factory default is 10º C. For Example - if the Set Point is -60º and the default allowance is used, then the *Over T* alarm occurs at T>-50º or T<-70º. This allowance can be changed from 1º C to 50º C.
  - Small values ensure tight temperature control during long storage.
  - Large values can be used to reduce the number of Over Temperature alarms when the freezer is being open and closed frequently.
- This can only be changed when the *Over T* LED is glowing.
  - To view the allowance
    - Press both buttons **2** and **3** briefly to see the current allowance setting.
      - It will be display with the letter **A**, such as **A 10**.
  - To change the allowance
    - Press and hold both buttons **2** and **3** and then ↓ / ↑
    - The allowance value will change by 1 degree increments
  - To dismiss the allowance display
    - Either press and hold both buttons **2** and **3** briefly, OR
    - The display times-out after approximately 8 seconds.

To Silence the Temperature Alarm

- Press the button beneath the *Over T* indicator light until the display shows **1.0 h**, then use the down button to set the time to any negative time (e.g. **-0.1 h**). This will turn OFF the audible alarm.
- The *Over T* indicator LED will always glow whenever the chamber T is out of range.
- You can turn the silenced alarm back on by either
  - Resetting the postpone time to a positive number
  - Turning the freezer OFF and ON

Error conditions

- Certain conditions will cause an Error Code to be displayed on the 7-segment display, and the *Error* LED will be lit.
  - The error code will be of the form **E ##**, where **##** is the error code.
  - The error code will be displayed for about 5 seconds and then the display will return to showing the chamber temperature. The *Error* LED will stay on.
  - The error code can be recalled by briefly pressing the button under the *Error* LED. This will recall the error code for approximately 10 seconds.
  - If button 2 is pressed and held for 5 seconds (three beeps) this will clear both the 7-segment display and the *Error* LED. However, if the error condition persists the error cycle will start over again.

Locking the Panel

To Lock the freezer panel

- Press and hold buttons **1**, **2** and **3** until the freezer beeps three times
  - The *Locked* indicator LED will light up
  - You cannot Lock the panel if there is an over temperature or error condition

To Unlock the freezer panel

- Press and hold buttons **1**, **2** and **3** until the freezer beeps three times
  - The *Locked* indicator LED will go turn off
  - The freezer will still indicate over temperature alarms or error conditions while it is locked. You have to unlock the panel to handle those alarms/conditions.

How to switch between power supplies

- There are several possible power sources for the ULT-25:
  - GC provided SS-18 13.8 V power supply
  - Automobile accessory plug (cigarette lighter)
- When changing from one power supply to another you should first stop the ULT-25.
  - Turn OFF the ULT-25 (Press and hold the **I/O** button)
  - Wait for the FPSC to slow and stop (15 seconds).
  - Unplug the ULT-25 from one power source and plug it into the next.
  - The ULT-25 can be restarted immediately. There is no need to wait, unlike some compressor systems.
  - Turn ON the ULT-25 by pressing and holding the **I/O** button.

Error Codes

These are displayed in the 7-segment display as **E ##**

10	The FPSC is not maintaining a working temperature on the heat rejection fins. This could arise from blocked filters, blocked air passages, unusually hot ambient temperatures (for example >45º C), or a fan failure. Check air passages and clear any blockages to good air circulation. Remove from hot environments (car interiors, etc).
11	The problem described in error code 10 has become critical. The freezer has stopped freezing in order to prevent damage to temperature sensitive parts. Please perform the maintenance described above before restarting the freezer.
20	This error code may arise from a simple sensor failure or a more complex failure of the controlling board. The FPSC may be overheating. Continued operation of the freezer to protect samples may result in damage to the FPSC. Please return for repair.
21	This error code may arise from a simple sensor failure or a more complex failure of the controlling board. The freezer has entered a maximum cooling mode which has no temperature regulation. If the problem is more than simple sensor failure the freezer might not maintain an ultra low temperature. Continued use has risks – no chamber temperature control, possible damage to the FPSC, etc. Please return for repair.
30	Input voltage too high. Check the input voltage, and reduce to acceptable input levels. Continued operation of the freezer may result in damage to the electronic controls. The operation of the FPSC protects the electronics to some extent by dropping the voltage. If the FPSC is turned OFF using the panel then the complete over voltage is put across the electronics. If you decide to stop using the freezer then unplug the freezer from the voltage source rather than using the I/O button to turn it OFF. This may cause it to make a noise when the linear motor stops suddenly – the noise does not signal that damage has occurred.
31	Input voltage slightly low. Check the input voltage, and increase to acceptable input levels. Check seating of plugs, wiring, etc. The freezer will continue to operate with decreased performance.
32	Input voltage too low. Check the input voltage, and increase to acceptable input levels. Check seating of plugs, wiring, etc. The electronics can operate but the FPSC will not provide significant cooling when the voltage is too low.
40	A component which monitors FPSC performance has failed. The FPSC cannot regulate itself. Please return for repair.
90	An electronics memory problem has occurred which might cause loss of set point data between uses. Please return for repair.

MAINTENANCE

With the exception of the filter, there are no user serviceable parts to maintain.

Air Intake Filter

Clean accumulated dust and dirt on the AIR INTAKE FILTER every month. Pull the FILTER COVER to the left as shown. Please note that it cannot be completely removed. Gently clean the filter with a vacuum cleaner. If there are stubborn residues use a soft brush to work them loose.

Storage

1. Turn off the power and allow the freezer to come to room temperature.
2. Dry the inside of the freezer compartment, and clean any spills.
3. Disinfect with suitable sterilizing agent if the freezer has been used for biohazards.

Cleaning

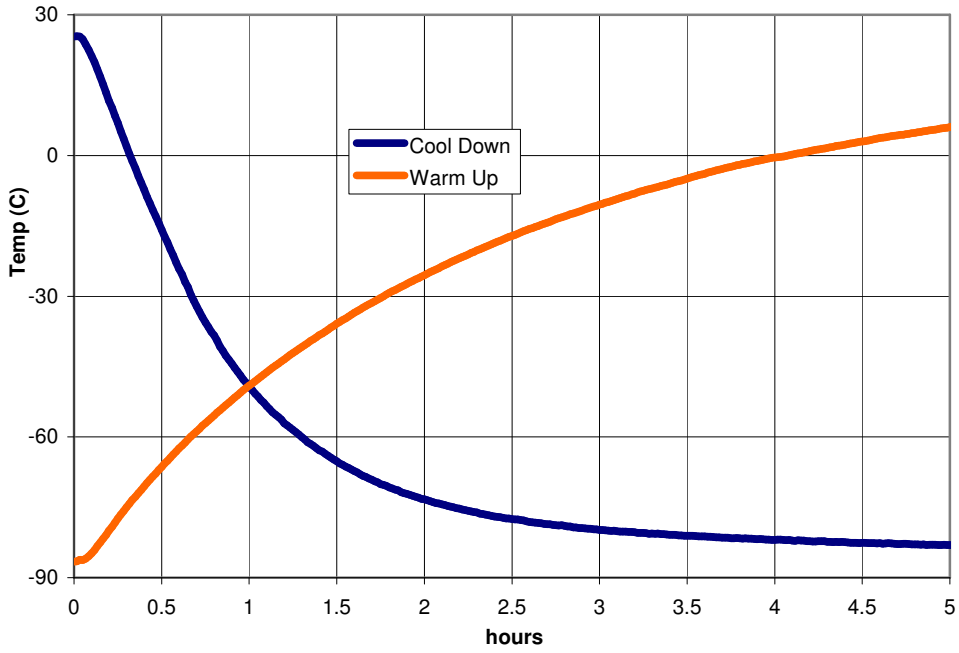
The exterior surfaces of the ULT25 can be cleaned as needed by using a soft cloth and mild detergent. Do not use solvent or harsh abrasive cleansers or pads.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Freezer does not power on.	Power is not getting to the Freezer from the Power Supply	**Check that the power supply is turned on**
		Check the connections to the power supply
		Assure that the wall plug is firmly seated
	Power is not getting to the Freezer from the Auto Accessory Plug	Reseat the connections to the accessory plug
		Remove any dirt or burnt material inside the accessory socket or on the plug
		Replace any blown automobile fuses
Freezer does not achieve desired temperature	Inadequate air circulation	Clean air filter screen
		Remove air flow obstructions
	Inadequate power	Assure that the wall plug is firmly seated
		Remove any dirt or burnt material inside the automotive accessory socket or on the plug
		Run Freezer only when automobile is running
	Improper environment	Remove Freezer from direct sunlight, hot room, etc
		Check that Freezer is level. Tilts of more than 12º in some directions will degrade performance.
Freezer cools slowly	Overloading of Freezer	Remove some items from Freezer
	Lid is not completely closed	Check for ice buildup, remove if necessary, and properly close lid
	Lid is open and closed too often	Minimize opening and closing of lid
	Inadequate Air Circulation	Clean Filter and unblock air vents
12 V plug becomes unusually hot	Dirt and/or burnt organic matter in the accessory socket	Clean the socket
Error indicator shows low voltage	Dirty sockets, splitters and overly long extension cables. Other devices on same circuit	Clean socket, cease using splitters, turn off other devices, use better or shorter cables
	Battery losing charge	Charge battery. If in vehicle, start vehicle before charge is too low to start vehicle.

SPECIFICATIONS

Operating Voltage	DC 13.8 V (11 – 16 V)
Power Consumption	~150 W
Set Temperature Range	-80º C to -20 º C
Ambient Operating Temperature	0º C to +35 º C
Freezer Compartment Capacity	~ 25 l
Freezer Compartment Dimensions	D340 x W225 x H340 mm
Overall Dimensions	D695 x W350 x H460 mm
Weight	39 lbs. (18 kg)



Made in the USA

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More information on the ULT-25, FPSCs and Global Cooling can be found at http://www.globalcooling.com

WARRANTY

GLOBAL COOLING INC., as the Manufacturer warrants the quality of all parts used in the construction of the ULT25 to be free from defects to the original purchaser.

1. This WARRANTY shall continue for one year from the original delivery date, i.e. one year from the time of delivery to the shipper (e.g. UPS, Fed Ex, *etc).*
2. This WARRANTY shall have force and effect only if all items are operated in accordance with instructions provided by the manufacturer.
3. This WARRANTY shall not extend to ordinary wear and tear.
4. This WARRANTY shall not extend in any way to liability (whether or not construed on tort or contract or any other theory of law) to consequential damages resulting from:
    - Ordinary use of the product
    - Abuse or misuse of the product
    - Interruption or cessation of the operation of the product from any cause whatsoever, including but not limited to power failure, low voltage, acts of God, explosion, negligent operation and the like.
5. This WARRANTY shall extend only to furnishing for replacement a part found by the manufacturer to be defective.
6. This WARRANTY shall not extend nor cover any part used as a replacement part beyond the original one year product WARRANTY: nor does the manufacturer undertake any obligation in connection with this WARRANTY other than that specifically set forth above. No person is authorized to make any representation as to this WARRANTY except duly authorized officers of Global Cooling Inc.
7. Global Cooling Inc. agrees if instructions as to operation and use are strictly followed, and power sources (circuits, voltages, etc.) are properly applied, to provide within one year after original delivery to the shipper, labor free of charge to maintain the product in good working condition.
8. The customer will pay for the cost of returning the freezer to Global Cooling Inc (or to the distributor if approved by Global Cooling Inc). Global Cooling Inc will pay for the cost of returning the freezer to the customer, unless examination of the freezer demonstrates that the freezer was damaged by operation or handling outside the instructions provided by the manufacturer.
9. This WARRANTY is limited to products purchased and used in the United States of America.

"Consequential damages" shall be defined to include, but not limited to spoilage of., or damage to contents placed in the product, loss of profits, expenses of delay resulting from interruption or cessation of the operation of the product, loss of customers or business good will, any time element loss, or any other special damages.

ALL WARRANTY returns MUST be decontaminated according to current laboratory protocols appropriate for any Bio Hazards which were contained in the freezer. A list of all Bio Hazard agents which had been contained in the freezer and a copy of the decontamination protocol used must accompany every freezer returned for repair.

Global Cooling Inc reserves the right to change all specifications for the mechanical, physical or firmware portions of this product without notice.